

5 What is claimed is:

1. A method of reordering bits in a first data element where the destination position of each bit to be reordered is known, comprising:
  - forming a first mask as a function of the destination position of each bit to be reordered;
- 10 forming a second mask as a function of the destination position of each bit to be reordered; and
  - centrifuging the first data element as a function of the first and second masks.
- 15 2. The method according to claim 1, wherein forming a second mask includes forming a mask data element as a function of the destination position of each bit to be reordered and centrifuging the mask data element as a function of the first mask.
3. The method according to claim 1, wherein centrifuging the first data element as a function of the first and second masks includes:
  - centrifuging the first data element as a function of the first mask to form an intermediate data element; and
  - 20 centrifuging the intermediate data element as a function of the second mask.
4. The method according to claim 1, wherein centrifuging the first data element as a function of the first and second masks includes:
  - providing a hardware centrifuge;
  - 25 passing the first data element and first mask through the hardware centrifuge to form an intermediate data element; and
  - passing the intermediate data element and second mask through the hardware centrifuge.
- 30 5. A device for reordering the bits of a data element according to a desired pattern, comprising:
  - means for generating a sequence of masks derived from the desired pattern; and
  - means for applying the sequence of masks to the data element.

5        6. The device according to Claim 5, wherein the means for generating a sequence of masks includes means for forming a first and a second mask as a function of the destination position of each bit to be reordered.

7. The device according to Claim 5, wherein the means for applying the sequence of masks to the data element includes a hardware centrifuge.

10      8. The device according to Claim 5, wherein the means for applying the sequence of masks to the data element includes a pipelined hardware centrifuge.

9. A computer readable medium having instructions written thereon, wherein the instructions, when executed on a computer, create a system for reordering the bits of a data element to a desired pattern, the system comprising:

15      means for generating a sequence of masks derived from the desired pattern; and means for applying the sequence of masks to the data element..

10. The device according to Claim 9, wherein the means for generating a sequence of masks includes means for forming a first and a second mask as a function of the destination position of each bit to be reordered.

20      11. The device according to Claim 9, wherein the means for applying the sequence of masks to the data element includes a hardware centrifuge.

12. The device according to Claim 9, wherein the means for applying the sequence of masks to the data element includes a pipelined hardware centrifuge.

25      13. A system for reordering the bits of a data element according to a desired pattern, comprising:

      a centrifuge;  
      means for generating a sequence of masks derived from the desired pattern; and  
      means, connected to the centrifuge, for applying the sequence of masks to the data element using the centrifuge.

30      14. The device according to Claim 13, wherein the means for generating a sequence of masks includes means for forming, within the centrifuge, a first and a second mask as a function of the destination position of each bit to be reordered.

5           15. The device according to Claim 5, wherein the centrifuge is a pipelined  
hardware centrifuge.